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PLANETARY PHENOMENA FOR MARCH AND
APRIL, 1911.

BY MALCOLM McNEILL.

PHASES OF THE MOON, PACIFIC TIME.

First, Quarter...	Mar. 7, 3 ^h 1 ^m P.M.	First Quarter ..	Apr. 5, 9 ^h 55 ^m P.M.
Full Moon	" 14, 3 58 P.M.	Full Moon ... "	13, 6 37 A.M.
Last Quarter ...	" 22, 4 26 P.M.	Last Quarter.. "	21, 10 36 A.M.
New Moon	" 30, 4 38 A.M.	New Moon ... "	28, 2 25 P.M.

The first of the two eclipses of the year will be a total eclipse of the Sun on April 28th. No part of the path of totality passes through the United States, but it may be seen as a partial eclipse in the late afternoon except in New England, New York, and New Jersey. The amount of obscuration of the Sun will be very small in the northern and eastern parts of the country. The path of totality runs across the Pacific from Southeastern Australia to a point off the southern coast of Mexico. No large body of land lies in its path, but there are a few small islands; and since for stations near the center of the Pacific the duration of totality is nearly five minutes, an amount considerably more than the average, it will be worth while to send an expedition to observe it.

The vernal equinox, when the Sun crosses the equator from south to north, comes on March 21st, at 10 A. M. Pacific time.

At the beginning of the month *Mercury* is a morning star, but too near the Sun to be seen, as it rises less than half an hour before sunrise. It reaches superior conjunction with the Sun on the morning of March 20th and becomes an evening star. By April 1st the distance between Sun and planet has increased so that the difference of the times of setting of the two bodies is about one hour. This difference increases until about the middle of the month, and it is then about an hour and three quarters. After this the interval diminishes until at the end of the month it is not much more than half an hour. The greatest elongation occurs on the evening of April 14th, the

distance of the planet from the Sun being then a little less than 20° . This distance is rather less than the usual greatest elongation, as the planet is near perihelion, having passed that point on April 2d. *Mercury* and *Saturn* are in conjunction on April 10th, *Mercury* being about 5° north of *Saturn*.

Venus is an evening star, slowly increasing its apparent distance from the Sun, setting not quite two hours later on March 1st, and a little more than three hours later on April 30th. During the two months' period it moves from a point 2° east of the vernal equinox in *Pisces* 72° eastward and 24° northward through *Pisces* and *Aries* into *Taurus*. On April 24th it passes conjunction with the first magnitude star *Aldebaran*, α *Tauri*, at a distance of 7° north of the star. It also passes 2° north of *Saturn* on March 28th and less than one degree from the Moon on April 1st, this last conjunction, however, occurs during daylight in this country. *Venus* is in perihelion on April 29th.

Mars is a morning star, rising a little less than two and one-half hours before sunrise. The relative motion of the planet and Sun is such that the interval changes less than ten minutes during the two months' period. *Mars* moves about 46° eastward and 12° northward from a point near the western border of *Capricornus*, through that constellation and nearly through *Aquarius*. No bright stars are near it, but there is an interesting conjunction with *Uranus* on the morning of March 11th, the brighter planet being $23'$ south of the fainter. The distance of *Mars* from the Earth diminishes from 178,000,000 to 141,000,000 miles, and its brightness increases about two thirds, so that by the end of April it is just about one eighth as bright as it will be at the opposition in November.

Jupiter rises shortly after 11 P. M. on March 1st and somewhat before 7 P. M. on April 30th. It comes to opposition with the Sun on the evening of April 30th and is then above the horizon throughout the entire night. It is in the constellation *Libra*, not far from α *Librae*, and its motion among the stars is retrograde, westward, about 3° and one degree northward.

Saturn is in the opposite part of the sky from *Jupiter*, being near the Sun and coming to conjunction with that body within two hours of the time *Jupiter* is in opposition on April 30th. On March 1st it sets at about 10 P. M. and on April 1st shortly

after 8 P. M., just about two hours after sunset, but by the middle of April it will be too near the Sun for naked-eye observation.

Uranus is a morning star, rising somewhat before 5 A. M. on March 1st and at about 1 A. M. on April 28th. It is on the border-line between *Sagittarius* and *Capricornus*, and is nearly stationary among the stars. No bright star is near to afford a means of easy identification, but its close conjunction with *Mars* on March 11th has already been mentioned.

Neptune, too faint to be seen without a telescope, is above the horizon throughout the entire evening in the constellation *Gemini*, south of *Castor* and *Pollux*, α *Geminorum* and β *Geminorum*.